1,2-DICHLOROETHANE ($C_2H_4Cl_2$)

also known as Ethylene Dichloride
Chemical Abstracts Service (CAS) Number: 107-06-2

General Information

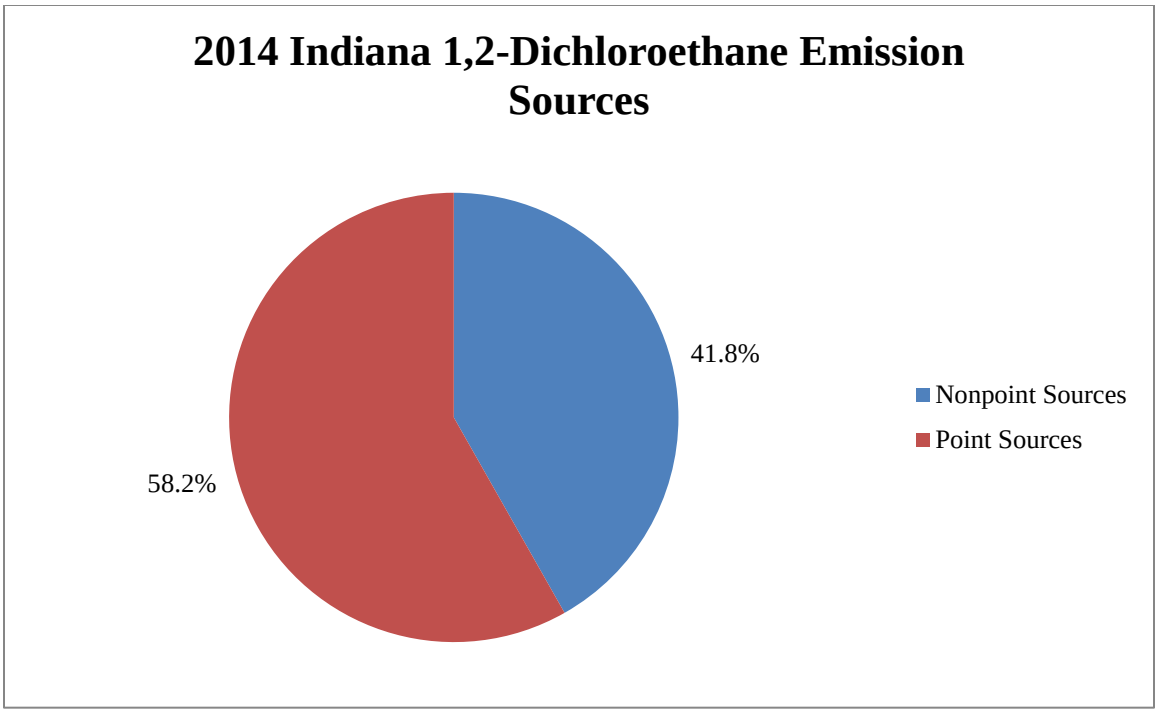
1,2-Dichloroethane occurs as a colorless, oily, heavy liquid that is slightly soluble in water. 1,2-Dichloroethane has a pleasant chloroform-like odor. Acute (short-term) inhalation exposure of humans to 1,2-dichloroethane can affect the nervous system, with effects including narcosis, nausea, and vomiting. Chronic (long-term) exposure to 1,2-dichloroethane produced effects on the liver and kidneys in animals. No information is available on the chronic effects of 1,2-dichloroethane in humans. U.S. EPA has classified 1,2-dichloroethane as a Group B2, probable human carcinogen.

Sources

- 1,2-Dichloroethane is primarily used in the production of vinyl chloride as well as other chemicals. It is used in solvents in closed systems for various extraction and cleaning purposes in organic synthesis. It is also added to leaded gasoline as a lead scavenger.
- 1,2-Dichloroethane is also used as a dispersant in rubber and plastics, as a wetting and penetrating agent.
- 1,2-Dichloroethane was formerly used in ore flotation, as a grain fumigant, as a metal degreaser, and in textile and PVC cleaning.
- Inhalation of 1,2-dichloroethane in the ambient or workplace air is generally the main route of human exposure.
- Exposure may also occur through the consumption of contaminated water. But usually 1,2-dichloroethane will evaporate quickly into the air from the water or soil.

Indiana Emissions

IDEM collects HAP emissions information for the categories of point sources (large stationary sources like power plants and factories), nonpoint sources (aka area sources - smaller stationary sources like gas stations and dry cleaners), and mobile sources (vehicles, airplanes, marine vessels, etc.).* Estimated statewide emissions of 1,2-dichloroethane totaled 1.84 tons in the 2014 calendar year. Of this total, 58.2% were attributed to point sources and 41.8% were attributed to nonpoint sources.



* For additional examples of types of emission sources, please visit IDEM's Hazardous Air Pollutants page at: http://www.in.gov/idem/toxic/pages/hap/index.html. For specific details on industrial sources of air toxics, please visit U.S. EPA's Toxics Release Inventory (TRI) page at: https://www.epa.gov/toxics-release-inventory-tri-program.

Measured Concentration Trends

Ambient air monitoring data most accurately represents a limited area near the monitor location. All monitors for air toxics sample every sixth day. The monitoring locations by themselves are not sufficient to accurately characterize air toxic concentrations throughout the entire state, however, results from the monitors will provide exposure concentrations with a great deal of confidence at the monitoring locations.

The ambient air monitoring results were analyzed using U.S. EPA recommended statistical methods. IDEM evaluated the data so that a 95% upper confidence limit of the mean (UCL) could be determined. A 95% UCL represents a value which one can be 95% confident that the true mean of the population is below that value.

To learn more about the current monitoring locations, please visit IDEM's Air Toxics Monitor Siting webpage at: http://www.in.gov/idem/toxic/2337.htm

Data analysis was performed for each monitor that operated for the majority of 2015 and each historical monitor that operated for a significant portion of the analysis period. This analysis determined the detection rate, which is defined as the percentage of valid samples taken statewide that had a quantifiable concentration of the pollutant. The statewide detection rate of 1,2-dichloroethane for the monitors analyzed from 2006-2015 was 33.1%. This detection rate is

too low for IDEM to draw any conclusions about concentration trends of 1,2-dichloroethane. IDEM did not perform a trend analysis for any pollutant with a detection rate less than 50%.